



ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
MARCH 8, 2007 – 9:00 A.M.
MULTI-MODAL CONFERENCE ROOM

<i>Present:</i>	J. Polasek T. Anderson C. Bleech	J. W. Reincke C. Roberts E. Burns	J. D. Culp T. Fudaly
<i>Absent:</i>	L. Tibbits M. Van Port Fleet	J. Friend	B. O'Brien
<i>Guests:</i>	M. Bott B. Krom	J. Morena I. Gedaoun	D. Morena (FHWA) T. Palmer

OLD BUSINESS

1. **Approval of the Minutes of the December 8, 2006, Meeting – J. Polasek**

The December 8, 2006, meeting minutes are approved with revisions regarding the Action Statement for the following item:

NEW BUSINESS: Item 1, Sheeting on Temporary Signs

ACTION (As Written): EOC approves the recommendation to phase in prismatic sheeting on all MDOT construction projects beginning with the October 2007 letting. Beginning with the October 2007 lettings, the University and Metro Regions will specify only prismatic sheeting. Beginning with the October 2008 lettings, the Grand, Southwest and Bay Regions will specify only prismatic sheeting. Beginning with the October 2010 lettings, the Superior and North Regions will specify only prismatic sheeting. There will be no mixing of sheeting types on any project before, during or after the transition period.

ACTION (Revised): EOC approves the recommendation to phase in prismatic sheeting on all MDOT construction projects beginning with the October 2007 letting. Beginning with the October 2007 lettings, the University and Metro Regions will specify only prismatic sheeting. Beginning with the October 2008 lettings, the Grand, Southwest and Bay Regions will specify only prismatic sheeting. Beginning with the October 2009 lettings, the Superior and North Regions will specify only prismatic sheeting. There will be no mixing of sheeting types on any project before, during or after the transition period.

NEW BUSINESS

1. **Non-Freeway Rumble Strips – J. Morena and M. Bott**

Michigan's Strategic Highway Safety Plan (SHSP) identifies lane departure crashes as one of the 12 emphasis areas to target for reducing fatalities. In 2005, 43 percent of all Michigan fatalities were the result of a lane departure crashes. MDOT already strives to reduce run-off-road crashes on freeways by use of freeway shoulder rumble strips. MDOT has an

opportunity to continue proactive application of rumble strips onto the rural, non-freeway system to reduce all types of lane departure crashes.

As part of MDOT's commitment to Michigan's SHSP, it is recommended the department adopt:

- Special details for the design and location of centerline rumble strips and non-freeway shoulder rumble strips.
- A strategy to make installation of rumble strips on construction projects on rural trunklines a standard design consideration.
- A strategy to retrofit the rural non-freeway system with shoulder and/or centerline rumble strips.

ACTION: EOC approves the concept and guidelines, with revisions to the application and installation of rumble strips on rural non-freeway trunklines. John Polasek and Jill Morena will establish a team of region and central office personnel to develop the strategy for the implementation of non-freeway rumble strips.

2. **Non-Freeway Signing Design, Placement and Application Guidelines – M. Bott**

In an effort to provide statewide uniformity in non-freeway signing for development and delivery, the Traffic and Safety Division compiled several sources of information regarding non-freeway signing into one document. This information includes standard letter sizes for guide signs, overhead sign structure criteria, and a list of MDOT supplied signs on projects.

ACTION: EOC approves the Non-Freeway Signing Design, Placement, and Application Guidelines

3. **Great Lakes Circle Tour Signing – M. Bott**

In the past, guidance for design, placement and financial responsibility of the Great Lakes Circle Tour signing has been addressed through Traffic and Safety memorandums. It is recommended to add these guides to the Guidelines for Signing on State Trunkline Highways to provide statewide uniformity and a location for MDOT staff, consultants, and the public to reference the information.

ACTION: EOC approves inclusion of the Great Lakes Circle Tour signing into the Guidelines for Signing on State Trunkline Highways.

4. **Pavement Selections – B. Krom**

a. **I-75 Reconstruction, CS 09034, JN 84072**

The reconstruction alternates considered were a hot mix asphalt (HMA) pavement (Alternate 1 – equivalent uniform annual cost [EUAC] \$105,066/directional mile) and a jointed plain concrete pavement (Alternate 2 - EUAC \$100,430/directional mile). A life cycle cost analysis was performed and Alternate 2 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

11".....Jointed Plain Concrete Pavement w/ 14' joint spacing (mainline & shoulders)
6".....Open Graded Drainage Course

	Geotextile Separator
10"	Sand Subbase
6" dia	Open-Graded Underdrain System
27"	Total Thickness

Present Value Initial Construction	Cost \$1,469,734/directional mile
Present Value Initial User Cost	\$175,711/directional mile
Present Value Maintenance Cost	\$149,929/directional mile
Equivalent Uniform Annual Cost	\$100,430/directional mile

b. M-60 Rehabilitation, CS 14062 & 78041, JN 53367, 83263, and 78857

The reconstruction alternates considered were an HMA pavement over rubblized concrete (Alternate 1 – EUAC \$47,526/mile) and a jointed plain concrete pavement overlay (Alternate 2 - EUAC \$53,823/mile). A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

1.5"	HMA, 5E3, Top Course (mainline)
2"	HMA, 4E3, Leveling Course (mainline)
3"	HMA, 3E3, Base Course (mainline)
1.5"	HMA, 5E03, Top Course (shoulders)
2.5"	HMA, 4E03, Leveling Course (shoulders)
8.5"	Rubblized JRPC (mainline)
	Existing HMA (shoulders)
	Existing Base and Sand Subbase
6.5"	Total Section Thickness

Present Value Initial Construction Cost	\$340,148/mile
Present Value Initial User Cost	\$252,241/mile
Present Value Maintenance Cost	\$114,680/mile
Equivalent Uniform Annual Cost	\$47,526/mile

c. M-29 Reconstruction: CS 50072, JN 45727

The reconstruction alternates considered were an HMA pavement (Alternate 1 – EUAC \$72,128/mile) and a jointed plain concrete pavement (Alternate 2 - EUAC \$86,397/mile). A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

1.5"	HMA, 5E3, Top Course (mainline)
2"	HMA, 4E3, Leveling Course (mainline)
3.5"	HMA, 3E3, Base Course (mainline)
2"	HMA, 5E03, Top Course (shoulders)
3"	HMA, 4E03, Leveling Course (shoulders)
6"	Open-Graded Drainage Course (mainline)
8"	Open-Graded Drainage Course (shoulders)
	Geotextile Separator
	Existing Sand Subbase (mainline)
18"	Sand Subbase (shoulders)
6" dia	Open-Graded Underdrain System

13" Total Section Thickness

Present Value Initial Construction Cost..... \$1,025,797/mile

Present Value Initial User Cost..... \$162,987/mile

Present Value Maintenance Cost \$224,961/mile

Equivalent Uniform Annual Cost \$72,128/mile

d. US-10 Eastbound Rehabilitation: CS 56044, JN 60433

The reconstruction alternates considered were an HMA pavement over rubblized concrete (Alternate 1 – EUAC \$47,295/directional mile) and a separated jointed plain concrete pavement overlay (Alternate 2 - EUAC \$54,899/directional mile). A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

1.5" HMA, 5E10, Top Course (mainline)

2" HMA, 4E10, Leveling Course (mainline)

3.25" HMA, 3E10, Base Course (mainline)

1.5" HMA, 5E3, Top Course (shoulders)

2" HMA, 4E3, Leveling Course (shoulders)

3.25" HMA, 3E3, Base Course (shoulders)

9" Rubblized JRCP (mainline)

Existing Base & Subbase

Underdrain System

6.75" Total Section Thickness

Present Value Initial Construction Cost..... \$412,359/directional mile

Present Value Initial User Cost..... \$131,376/directional mile

Present Value Initial MOT Cost \$45,188/directional mile

Present Value Maintenance Cost \$114,709/directional mile

Equivalent Uniform Annual Cost \$47,295/directional mile

e. US-10 Westbound Rehabilitation: CS 56044, JN 75305 and 84170

The reconstruction alternates considered were an HMA pavement over rubblized concrete (Alternate 1 – EUAC \$51,352/directional mile) and a separated jointed plain concrete pavement overlay (Alternate 2 - EUAC \$55,752/directional mile). A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

1.5" HMA, 5E10, Top Course (mainline)

2" HMA, 4E10, Leveling Course (mainline)

3.25" HMA, 3E10, Base Course (mainline)

1.5" HMA, 5E3, Top Course (shoulders)

2" HMA, 4E3, Leveling Course (shoulders)

3.25" HMA, 3E3, Base Course (shoulders)

9" Rubblized JRCP (mainline)

Existing Base & Subbase

Underdrain System

6.75" Total Section Thickness

Present Value Initial Construction Cost..... \$412,359/directional mile

Present Value Initial User Cost.....	\$191,811/directional mile
Present Value Initial MOT Cost	\$45,106/directional mile
Present Value Maintenance Cost	\$114,709/directional mile
Equivalent Uniform Annual Cost (EUAC).....	\$51,352/directional mile

5. Michigan Roundabout Guide – T. Palmer

Michigan currently does not have a guidance document for roundabouts. The draft document presented is the first phase in the overall document, and is not intended to cover design details. The guide will cover some of the basic roundabout questions, applications, and other issues associated with them. Included in the guide are general information needs, applications, safety benefits, basic guidance, monitoring needs, and a public involvement section. It also includes an intersection comparison matrix, which will aid a designer or manager with organizing information to make a better decision.

ACTION: EOC approves the work to date on the guide. The draft guide will be distributed for comment and returned to EOC for approval in May.

(Signed Copy on File at C&T)

Eric Burns for Brenda J. O'Brien, Secretary
Engineering Operations Committee

EB:kar

cc:	K. Steudle	S. Mortel	J. Steele (FHWA)
	J. Shinn	D. Jackson	R. Brenke (ACEC)
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